

REMARKS

Claims 1-16 remain in the present application.

Applicants acknowledge the acceptance of the Terminal Disclaimer filed on October 3, 2006 for overcoming the rejection based on U.S. Patent No. 7,029,747.

Claims 1-3, 5, 6, 9-13 and 16 are rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over Molnar et al. (U.S. Patent No. 6,267,644). Reconsideration of these rejections is respectfully requested for the following reasons.

Claim 1 of the present application states as follows:

A polishing pad which performs a polishing operation by moving in contact with a surface of an object being polished, the polishing pad comprising:

a polishing layer composed of a polymeric matrix and liquid microelements embedded in the polymeric matrix,
wherein open pores defined by the embedded liquid microelements are distributed across a surface of the polishing layer.

The Examiner has cited selective portions of the reference to conclude “it appears that Molnar uses the same material to form the polishing pad as Applicants and both products serve the same purposes, therefore, it is not seen that the open pores with the same pore size, which are defined by the embedded liquid microelements could not have been formed across a surface of the polishing layer as like material has like property.” However, a careful comparison of the portions of the present application supporting claim 1 does not support the Examiner’s conclusion which leads to the rejection of the various claims under either Section 102 or Section 103.

As described in various portions of the application, the size of the embedded liquid microelements 140 and the size of the pores 140' defined by the embedded liquid microelements 140 can be variously adjusted by adjusting the amount of liquid material and/or the amount of the dispersing agent. Thus, creation of the pores on the surface of the

polishing pad by adjusting the relationship between the polymeric matrix and liquid microelements disposed in the polymeric matrix, results in the various pores occurring across the surface of the polishing layer. This structural aspect of the invention as recited in claim 1 would not necessarily be a natural result of the combinations of elements set forth in Molnar. The present application makes clear that it is a precise combination of elements comprising the polymeric matrix and liquid microelements that cause the pores to occur on the surface of the polishing layer. Merely picking and choosing selected portions of the Molnar reference and comparing those to the materials disclosed in the present application, and as recited in the rejected claims, would not lead to the conclusion supporting the present rejection.

This is further supported by the various experimental examples discussed in the application. As the examples show, using particular combinations of elements yield the occurrence of pores across the surface of the polishing layer. Contrary to the conclusion of the Examiner, controlled combinations of these elements, i.e. the polymeric matrix and the liquid microelements, cause various pores to occur across the surface of the polishing pad.

Thus, by the Examiner's own admission, the cited reference fails to show the structural features recited in claim 1 and the claims dependent therefrom. Reconsideration of these rejections is thus respectfully requested.

Claims 4 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Molnar et al as applied to claim 1, in combination with James et al. (U.S. Patent No. 6,069,080).

First, James is incapable of curing the deficiencies with the primary reference. Instead, the Examiner relies upon James as disclosing (1) a polishing pad for use in the manufacture of semiconductor devices having a urethane matrix material that includes polyethylene glycol with a molecular weight of 200 – 10,000 and present in an amount of 20 to 60% by weight of the matrix material and (2) a polishing pad having a flow channel on the surface.

However, nothing in the secondary reference discloses the creation of a polishing pad with the average diameter and the concentration of spheres by adjusting the hydrophilicity of the hydrophilic polymeric matrix. As explained in the application, an increase in the content of polyethylene glycol, results in the hydrophilicity of the polymeric matrix also increasing. Thus, the size of the embedded liquid microelements 140 decreases and the concentration thereof increases. As with the rejection of claim 1, the mere occurrence of the elements alone is not sufficient to teach the structural aspects of Applicants' claimed inventions.

Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over Molnar et al. as applied to claim 1, and further in view of Merchant et al. (U.S. Patent No. 6,364,744).

Again, the Examiner acknowledges that the secondary reference is incapable of curing the deficiencies with the primary reference. Instead, the Examiner relies on Merchant as disclosing a polishing layer and a support layer being transparent. However, as the Examiner recognizes, the secondary reference does not show the same combination of elements nor has the same structural features as that recited in the rejected claims. As a result, the combination of Molnar with Merchant does not provide for a polishing pad that is either transparent or semi-transparent with pores dispersed across the polishing surface of the polishing layer.

Claims 8 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Molnar et al. as applied to claim 1, and further in view of Reinhardt et al. (U.S. Patent No. 5,578,362).

As before, the Examiner acknowledges that the secondary reference is incapable of curing the deficiencies of Molnar. Instead, the Examiner relies on Reinhardt as teaching a polymeric polishing pad having hollow polymeric microelements embedded in the polymeric matrix and open pores defined by the hollow polymeric microelements distributed across the surface of the polishing layer as shown in Figure 3.

Neither of the cited references disclose the combination of liquid microelements and hollow polymeric microelements embedded in a polymeric matrix. The use of these two

elements together is thus not taught in either of the references either alone or in combination. It is respectfully submitted that the Examiner fails to recognize and acknowledge that use of both liquid microelements and hollow polymeric microelements in the same polymeric matrix to form a series of pores across the surface of the polishing layer is a distinct structural aspect not shown in either reference.

Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over Molnar et al. as applied to claim 1, and further in view of Bruxvoort et al. (U.S. Patent No. 5,958,794).

As with the previous rejections, the Examiner again acknowledges that the secondary reference is incapable of curing the deficiencies of Molnar.

Instead, the Examiner relies on the secondary reference as teaching a polishing pad having 40% to 75% by weight of the plasticizer based on the total weight of the polymeric matrix where the plasticizer includes silicone oils and castor oils. However, assuming *arguendo* that the Examiner's technical reading of the reference is correct, it is equally unable of teaching the invention recited in rejected claim 14.

The secondary reference, similar to Molnar, does not disclose or otherwise teach a combination of elements for creating a series of pores across the surface of a polishing layer of a polishing pad in a manner similar to Applicants' invention. As discussed above, the isolated selection of certain materials that would occur in the manufacture of a polishing pad does not yield the same structure as recited in the rejected claims.

Please note that Applicants have not challenged each and every aspect of the structural and functional differences between the cited prior art, used either alone or in combination, to reject the various claims. Thus, simply because Applicants have not traversed each and every conclusion of the Examiner, or a specific section of a reference cited as being different, it should not be considered as Applicants' consent or admission that any of the references teach aspects that are similar to the disclosed inventions.

Thus, reconsideration of the rejections as presented is respectfully requested.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of claims 1-16 in connection with the present application is earnestly solicited.


Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicants hereby petitions for a two (2) month extension of time for filing a reply to the outstanding Office Action and submit the required \$225 (small entity) extension fee herewith.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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